Antegrade vs. Retrograde Recanalization of Very Long CTO of SFA

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Recanalization of long SFA-Occlusions

- Antegrade approach (contralateral cross-over or ipsilateral) is standard.

- Failure-rate is up to 20% 

- Mainly due to inability to reenter the patent artery distal to the occlusion.
Reentry-Devices for Passage of CTOs

- Outback (Cordis)
- Pioneer (Medtronic)

Failure to reenter
Occlusion left SFA – CLI-Patient
Occlusion left SFA – CLI-Patient

After implantation of nitinol-stents
Assisted Patency after 28 Months
Outback after failed Reca of Fempop CTOs

- May 2006 – June 2009
- 118 femoropopliteal occlusions where antegrade recanalization failed
- Mean lesion-length 195 mm
- Recanalization-success with Outback™ catheter: 108/118 (91.5 %)

Bausback et al., JEVT 2011
Re-Entry Devices not applicable

Inability to enter CTO

Perforation within CTO
Retrograde Approach for CTOs of the SFA

- In case of antegrade failure
- 4 Fr. sheath
- Patient in supine position
- Puncture from ventral
Failure to enter the occlusion with the GW due to large collaterals
Retrograde SFA-Recanalization

- 21 Gauge needle
- 7cm length

Micro-Puncture set (COOK)

LAO
Retrograde SFA-Recanalization

RAO

> ~ 110°
Retrograde SFA-Recanalization
Retrograde SFA-Recanalization

0.025"
Retrograde SFA-Recanalization

4F angled support-catheter
Angled GlideCath (Terumo)
Retrograde SFA-Recanalization

4F Judkins Right for snaring of the guidewire
Retrograde SFA-Recanalization

Intervention proceeds from antegrade
Haemostasis after retrograde access

Balloon

Sheath

RR-cuff
Retrograde SFA-Recanalization

Result after antegrade stenting
Retrograde SFA-Recanalization with Access to the distal SFA with the Patient in Supine Position

- December 2009 – March 2011
- 44 SFA-occlusions with failed antegrade attempt
- Mean lesion length 199 mm
- Success in 42/44
- 2 small pseudoaneurysms at the distal access site
- successful duplex-assisted compression.
Retrograde Approach for SFA-CTOs

- Standard: transpopliteal approach
- 4-6 Fr. sheath
- Patient in prone position
- Inconvenient for patient and physician
Disadvantage of Prone Patient-Position

Retrograde guidewire does not pass the occlusion
“Double Approach Technique”
Double-Balloon Technique
**Complex Infrainguinal CTOs**

- Male 82 years
- Re-occlusion after
  - Bypass
  - SFA-stenting
Retrograde Approach for CTOs in Supine Patient-Position
Complex Infrainguinal CTOs

Antegrade entrance into occluded stent impossible

Retrograde passage double-balloon technique however failed

Retrograde puncture of the high ATA
Recanalization—Techniques for Complex CTOs
Recanalization of Complex Infrainguinal CTOs
Conclusion

- Antegrade approach is standard in long SFA-CTOs, including reentry-devices if necessary.

- Retrograde approach only if the above techniques fail.

- Antegrade + retrograde allows more bailout-techniques than transpopliliteal only.

- Antegrade + retrograde is cost-saving compared to reentry-devices.